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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,856	04/14/2004	Oleg S. Fishman	1946-010US	6187
31855	7590	07/18/2005	EXAMINER	
PHILIP O. POST INDEL, INC. PO BOX 157 RANCOCAS, NJ 08073			HOANG, TU BA	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No. 10/823,856	Applicant(s) FISHMAN ET AL.	
	Examiner Tu Ba Hoang	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "progressively" in claims 1, 10, 13 and 20 is a relative term which renders the claim indefinite (i.e., "progressively decreasing"). The term "progressively" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how fast or slow would be considered "progressively".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-6, 10-11, 13-15, 17-18, and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Schluckebier et al (US 5,135,781). Schluckebier et al shows an apparatus for induction heating metal comprising a vessel or crucible 2 for containing a molten mass (8) of a metal, a plurality of induction coils (3,4,5) surrounding the height of the exterior of the vessel, means for selectively applying ac current to each of the coils to inductively heat the molten mass (8) with applied heat decreasing from the bottom to the top of the molten mass in the vessel whereby the molten mass solidifies as deposits 10 from the bottom of the vessel, a control means including switching means or contractors for each of the coils for selectively opening and closing each of the switches 11, 12, and 14, each of which has a first switch terminal and a second switch terminal, whereby each of the first switch terminals exclusively connected to a first coil terminal of each of the coils and a source of ac current (13 or 15) having a first source terminal and a second source terminal with the first source terminal connected to all of the second switch terminals and the second source terminal connected to all of the second coil terminals as shown in the drawing. It is inherently that by controlling the heating order of each coils, the molten mass can be solidify from the bottom to the top of the crucible 2 or by selectively turn off or reducing power provided to the coil in the order from the bottom to the top, the molten mass 8 is selectively cooled in the veseel from the bottom to the top of the molten mass.

Claims 1, 3-7, 9-13, 15-19, and 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuda et al (US 6,307,875). Tsuda et al shows all features of the claimed invention including a plurality of coils 5,6, each provided with switching means 7,8 and a control means 12 with feedbacks for selectively applying ac current to each of

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the coils, where in the molten mass 13 can be solidify from the bottom to the top of the crucible 4 as shown by element 14 and wherein the solidified metal can be push out of the vessel 4 by means of a drawing device 20 shown in Figure 8. and the coil can be in the form of the cooled coil where cooling fluid can flow through such as coil 38 shown in Figure 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al in view of Fukuzawa et al (US 5,416,796). Tsuda et al discloses substantially all features of the claimed invention as previously set forth above except for the use of a sensor means to sense the progress of solidification of the mass of the molten mass from the top of the vessel. Fukuzawa et al shows the use of a sensor means 23,24 for sensing the progress of solidification of the molten mass from the bottom to the top of the vessel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Tsuda et al the sensor means taught by Fukuzawa et al in order to sense the solidify condition of the molten such as its temperature and the surface level thickness or gauge.

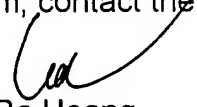
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Kasper (US 3,331,909) and Fishman et al (US 6,798,822).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu Ba Hoang
Primary Examiner
Art Unit 3742

July 11, 2005